# Conjugated polyions

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# Propositions

accompanying the dissertation

**Conjugated polyions**
Polymers with ionic, water-soluble backbones

by

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1. The paper titled "Rational Design of High Performance Conjugated Polymers for Organic Solar Cells" fails to supply *rational* design rules for conjugated polymers.
   – Macromolecules **45**, 607 (2012).

2. The habit of reporting the highest value of number-average molecular weight given by GPC without any interpretation results in a distorted view of the *real* molecular weight of conjugated polymers.
   – Sci. Rep. **2**, 754 (2012).

3. Laboratory derived power conversion efficiencies are a poor figure of merit for the development of new OPV materials and, instead, optimizing performance with industrial viable processing techniques should be emphasized.
   – Adv. Energy Mater. **5**, 1402186 (2015).

4. The development of materials that are not intrinsically scalable or processable in an industrial viable manner does not contribute to the wide-spread commercialization of OPV.

5. Expecting high degrees of polymerization without proving the purity of your monomers and solvent(s) in a step-growth copolymerization is folly.
   – Trans. Faraday Soc. **32**, 39 (1936)

6. The combination of low molecular weight, rigidity, and strong $\pi$-$\pi$ stacking, due to extended conjugation, can outweigh unfavorable thermodynamics of mixing typically observed with conventional polymers.

7. The definitions "water-processable" and "water-soluble" are not interchangeable and the former does not imply the latter.

8. A fitting title for this thesis could have been: "Fifty shades of yellow".